APCO Aviation Ltd.

USER MANUAL

E D G E

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Introduction

The EDGE Harness is the result of Apco's policy of ongoing research, development and product improvement. Having realized that the market demanded a harness with maximum pilot protection without excessive weight, volume and cumbersome, the engineers in the R&D team at Apco set about designing the EDGE.

The EDGE has a unique pilot protection system, combining the usual airfoam type protector with a Polystyrene side impact protector which offers the maximum protection available to a paraglider pilot today.

Apart from the Unbeatable Pilot Protection, the EDGE offers other great features such as the floating seat board which is connected to the speed system to improve comfort and aerodynamics while you are accelerating, and makes it very easy to slip in and out of the harness after take-off and before landing.

The New Harness geometry gives great comfort, with perfect adjustment possibilities, while eliminating excessive webbing and straps. The adjustment straps are kept tidy with a unique system that prevents them from flapping in the wind. Two PVC Battens aid in spreading the load evenly along the back, increasing comfort while reducing the amount of webbing supports required.

The EDGE has a bottom mounted reserve with the handle on the right side of the harness, which gives you both an easy accessible reserve and a well balanced harness in the air.

The clean aerodynamic form of the EDGE reduces drag created by the pilot and Harness, giving you higher performance all round.

Harness Sizing

The EDGE is currently available in three sizes for pilots from under 150cm up to 200cm.

Small/Medium	Up to170cm	(42100)
Large/X-Large	165 to 185cm	(42200)
XX-Large	180cm and up	(42300)

Harness Colors

The EDGE is available in several Color combinations here are the options:

Black & Royal Blue

Black & Red

Black & Yellow

Black & Beige

Olive & Beige

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Disclaimer:
In designing and manufacturing the EDGE and any of its subassemblies or accessories, our aim has been to create a harness system that will allow the user to engage in the sport of paragliding in a safe and comfortable way.

However, paragliding is a high-risk activity, which may cause or result in serious injury or death. When you take it upon yourself to participate in the sport of paragliding, you accept the risk inherent therein. You may reduce the risk by receiving proper instruction and by following the basic safety requirements. The EDGE is a sensitive device, which may easily be damaged. Before each flight, the harness should carefully be inspected for evidence of damage or wear. Any deviation from the manufacturer's specifications concerning maintenance, repair, alterations and modifications constitutes willful negligence.

It is expressly understood and agreed that by the use hereof by the buyer or any subsequent user that Apco Aviation Ltd. And/or the seller shall in no way be deemed or held liable or accountable and makes no warranty, either expressed or implied, statutory, by operation of law or otherwise, beyond that expressed herein.

Paragliding equipment is sold with all faults and without any warranty of merchantability or fitness for any purpose, expressed or implied. Apco Aviation Ltd. Disclaims any liability in tort for damages, direct or consequential, including personal injuries, resulting from a malfunction or from a defect in design, manufacturing, materials or workmanship, whether caused by negligence on the part of Apco Aviation Ltd. or otherwise.

By using any Paragliding equipment manufactured or sold by Apco Aviation Ltd., or allowing it to be used by others, the buyer and/or user waives any liability on the part of Apco Aviation Ltd., for personal injuries or any other damages arising from such use.

The liability of Apco Aviation Ltd. is limited to the replacement of defective parts found under examination by manufacturer to be defective in material or workmanship within 120 days after purchase, and which has not been caused by an accident, striking, improper use, alteration, tampering, excessive use, misuse or abuse.

The damages of the buyer and/or user shall be deemed liquidated in the costs of replacement as above.

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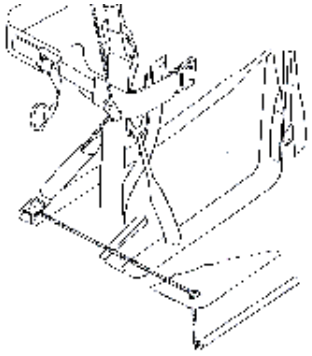
Speed System Assembly

The Speed system rigging and geometry on The EDGE differs from previous Apco Harnesses, in that the EDGE has a floating seat board , that is lifted when the speed bar is applied. This results in a more comfortable and aerodynamic position while in



accelerated flight. Please observe the IMPORTANT Warnings on this page regarding the use of your speed system in flight.

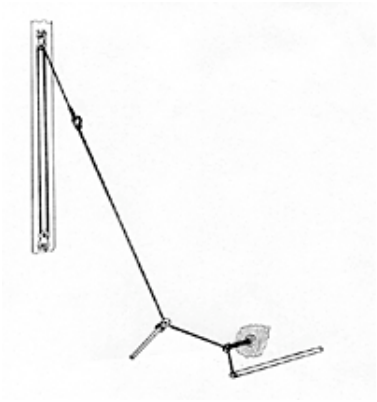
There are too different ways to rig your speed system through the EDGE harness; This allows you to fully customize your speed system providing optimal range and ease of use. Follow the instructions and advice below to choose the best configuration for your particular needs, and to set up the speed system.

Option 1

The Standard (Recommended) method to rig the speed system on your EDGE harness is as follows:

Thread the accelerator cords through the grommet (eyelet) situated in the fabric at the front corners of the seat. Then pass the cords through the pulleys attached to the rear side of the seat (pulley A).Now pass the cords grommet (eyelet) above the pulley you have just threaded situated in the neoprene at the sides of the EDGE harness. Now you can attach the Chain Link/Clamp or maillon rapide to the cord and attach it to the riser. Check the IMPORTANT Adjustment Instructions, which follow the alternative rigging instructions below.

Option 2



Using this method, the assistance given to the floating seat by the speed system is removed. This eliminates the problems of the chain link/clamp meeting the upper pulley before the full range of the speed system can be applied. The floating seat board will still move as before, but not quite as far.

To rig your speed system with this method, The speed system can now be rigged by threading the cords from the speed bar, through the steel rings attached by elastic cord at the front corners of the seat board, then through the pulleys attached to the webbing at the sides of the seat (pulley B), and then up to the chain link/clamp attachments on the risers. Use the IMPORTANT Adjustment Instructions, which follow below.

Adding a Second Speed Bar Step

A Second Step increases your speed range by allowing you to adjust the upper (second) step much closer to the seat board, to a position where it is difficult to reach it without first applying the lower (first) step.

An additional step (bar) can be purchased from your Apco dealer.

Attach the additional step to the original step so that it

hangs approximately 30cm below the upper step and then shorten the entire system according to the Adjustment Instructions below.

Adding WONDER STIRRUP

Instead of using a main and second step it is possible and recommended to use the revolutionary wonder stirrup that contains a stirrup and a second step, all in one.

When the WONDER STIRRUP is connected to the harness it's held in a position which allows the pilot to insert his foot into the second step easily without ever needing to leave the hands from the brake. This system increase safety of flight and glider speed range.

In order to connect the WONDER STIRRUP, simply replace it with the regular stirrup following above instructions.

NOTE: When connecting, make sure the black loop is facing down and the red loop is facing forward.

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Speed System Adjustment
It is very important to ensure that your speed system is adjusted correctly before making your first flight with your new harness, and/or after making any changes or modifications to the system.

The best way to correctly adjust your speed system is to hang your harness from a suitable structure, which can support your weight. Attach your risers to the harness and sit in the harness while a friend holds the risers up to simulate a flying position. If the speed system is correctly adjusted, the speed bar will be situated approximately 10cm from the grommets (eyelets) at the front of the seat board. If you have added a second step to your speed bar, the upper bar can be situated much closer to the seat (approx. 2cm). Under no circumstances should the bar be closer to the seat. This will cause the cords to be tightened and will permanently apply the speed system during flight. It is also very important to check that the speed system is not applied when you rotate into a standing (as for take-off and landing) position. The 2cm of space above the upper step is to avoid the problems mentioned above.

The adjustment for systems using the chain link/claps is done by shortening or lengthening the cord at the point where it meets the speed bar, or on some gliders (Non Apco) it is done at the point where the lower cords meet the chain links/clamps. Adjust the cords so that they correspond with the specifications above.

Adjustment of Option 1, is normally done by moving the knot in the cord above where it emerges from the upper pulley-retaining loop in the riser. Adjust the system according to the above specifications.

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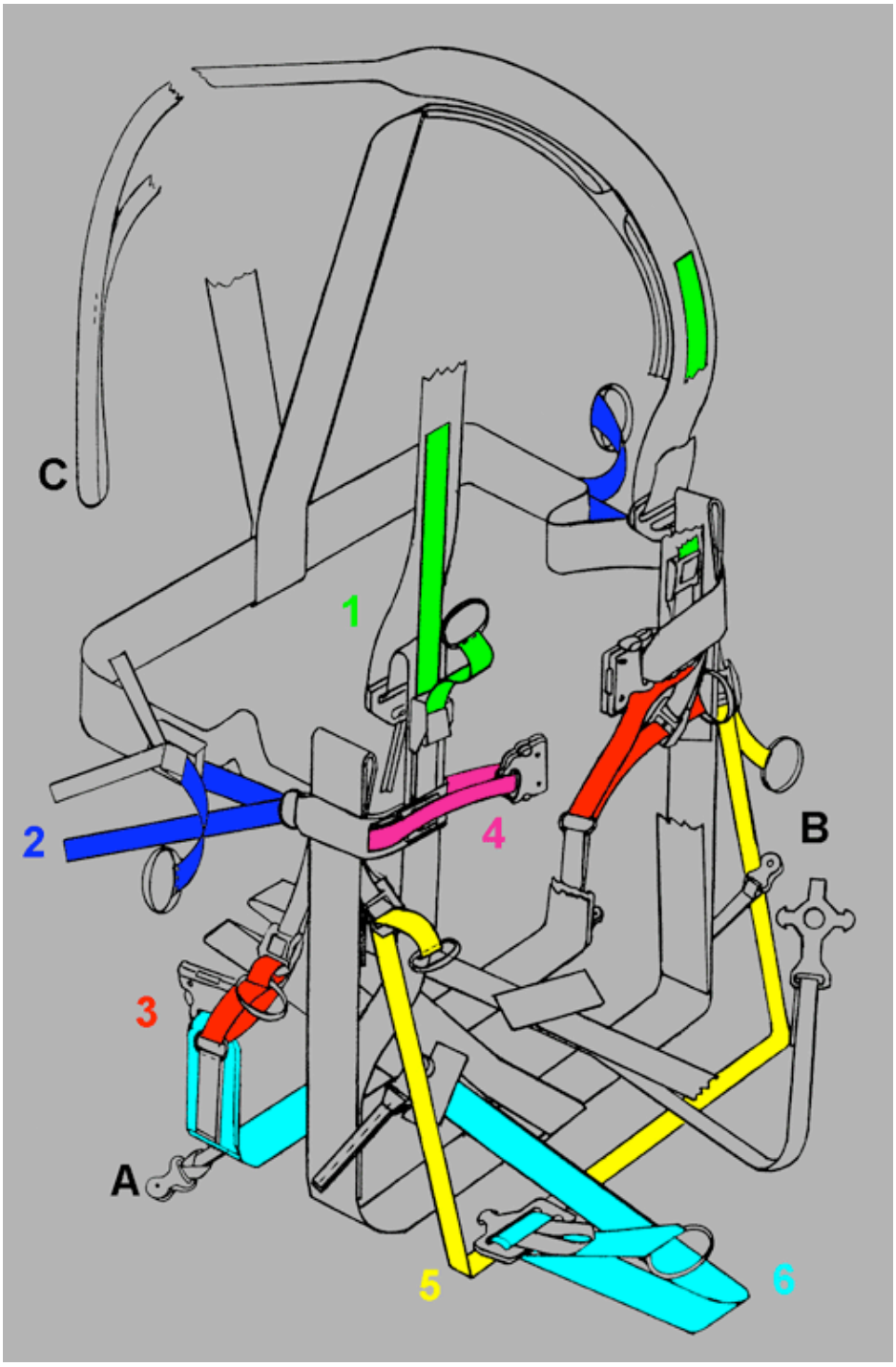
Speed System Warning

Once you have set up your speed system, make sure to test it in calm conditions, and never apply the speed system while close to the ground or in turbulent conditions.



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Adjustments

The paragraph/section numbering below refers to the labels in the diagram above.

The Shoulder Strap Adjusters are similar to most Apco Harnesses. These straps are best adjusted when standing with the chest and leg straps closed. Tighten the shoulder straps so that they are tight while standing upright. While in flight it is normal for these straps to be a little slack.

The Back/Side Strap Adjusters these are similar to previous Apco Harnesses. They are best adjusted while the harness is suspended from a suitable structure, before the first flight is made

The Seat Angle Adjusters are connected to the floating seat webbing, and should be adjusted while seated in the suitably suspended harness before the first flight. Make sure that moving in and out of the harness is easy and comfortable once you have adjusted these straps. This adjustment will also influence the position and weight shifting (when the seat is hair the weight shifting is more sensitive).

The Chest Strap Adjustment can be made at any time during flight or before. It can be used in any setting between its minimum and maximum, without it changing the seating position. The primary function of adjusting this strap is the ABS semi cross-bracing. At a wide setting there is only a little cross bracing, giving maximum weight shift capabilities, while at the tightest setting it offers maximum cross-over stability, with reduced weight-shift steering capabilities. The chest strap adjustment has a 1:2 reduction, making it easy to adjust while under tension, i.e. while flying.

The floating seat locker Adjustment can be made at any time during flight or before. It is connected to the floating seat and when tightened it will lock the pitching of the seat.

The Leg Straps are easily adjusted on the ladder lock buckles. Adjust the leg straps while standing upright in the harness, after closing both the chest strap and leg straps buckles. If the leg straps are on their longest setting and you cannot stand upright comfortably, the shoulder straps are too tight. It is preferable to have the leg straps short, and the shoulder straps longer. If the leg straps are too long, it will become difficult to rotate into a seated position after take-off.

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Reserve Parachute

The EDGE emergency parachute differs from previous Apco harnesses in that it is a bottom mounted system. This system has the advantage of being very easily accessible when you need it. In principle the assembly and fitting of the parachute into the harness is the same as most of the other Apco Harnesses. The installation must be done by a qualified person, and these instructions are only to serve as a guide to the proper fitting of your reserve. Remember that ultimately it is your responsibility to ensure that these instructions are followed correctly, and that your reserve will be working when you need it. After installation, it is recommended to do a test deployment while seated in the harness, suspended from a suitably strong structure. The reserve should be easy to remove from the flaps by pulling it out by the deployment handle. The Deployment Handle (46100) is new. The Deployment Bag (44120) is the same as used on our Contour and Silhouette Harnesses, and some of our other products. This makes it very easy to transfer a reserve from another Apco harness or external container to the EDGE Harness.

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Reserve Assembly and Installation

Your harness is supplied with a deployment handle fitted in the correct way. Remove the handle by pulling it out of the elastic retainers. Attach the

handle to the deployment bag (44120) supplied with your Mayday reserve parachute. If your Reserve is not already fitted inside the deployment bag, follow the instructions for doing this on the Mayday page.

If your reserve parachute is fitted / supplied in a non-Apco deployment bag, it is passable to install it into the EDGE, provided that the deployment bag has at least one attachment point for the deployment handle. There should be no other handle fixed to the deployment bag, if there is one, it must be removed. The attachment point may be centrally located on the deployment bag. Attach the Deployment Handle to the Non-Apco Deployment Bag by simultaneously threading both the attachment loops of the handle through the attachment point on the deployment bag, then pass the handle through both of the attachment loops to make a (double) Larks-head-knot, fixing the deployment handle to one point by both attachment loops. It is necessary to remove the split ring from the one attachment loop, since it will not be used in this case.

Attach the reserve parachute bridle to the center of the harness bridle using a larks head knot, sealed with a heat shrink tube to keep it in place.

Place the deployment bag containing the reserve inside the reserve container of the harness, with the handle facing up as shown.

WARNING!!!

DO NOT place the deployment bag with handle facing down.

Fit the deployment handle to flap No.1 by pushing its ends (cable first) into the elasticized sleeves with the cables protruding on the other side. The webbing part of the handles should be pushed almost all the way into the elasticized sleeves (stop about 8-10mm before the opening where the cable is protruding).

Take two short pieces of thin cord (i.e. glider line of approx. 40cm each, called "pull cords") and separately thread one through each of the white nylon closing loops attached to flap No.1 and flap No.2

Now close flap No.1 and No.2 over the reserve and thread the two pull cords through the grommet on flap No.2 and close flap No.2 and No.3 over the reserve and thread the two pull cords through the grommet on flap No.3.

Next close flap No.4 over flaps No.3, No.2 and No.1. Thread the pull cords through the grommet attached to flap No.4.

Next take one end of the cord attached to flap No.5 and thread it through the ring attached to flap No.4.

Next thread the two pull cords through the grommet attached to cord that you just assembled.

Next close flap No.5 over flaps No.4, No.3, No.2 and No.1. Thread the pull cords through the grommet attached to flap No.5.
Continue Pushing handle to flap No.5 until the webbing fits all the way through.

Tighten the pull cords so that the nylon closing loops are protruding through the grommets and push one of the locking cables through one of the closing loops.

Feed the cable into the punched hole on flap No.4 and carefully remove the pull cord from the closing loop by moving it to a position under the cable and pulling it out slowly to avoid burning the closing loop or cable.

Carefully remove the pull cord.
Repeat the procedure for the second loop.

Make sure Velcro attached to right and left side of panel No.5 is properly closed.

Finally, do a test deployment to check that the reserve can easily be extracted from the container by the pilot while sitting in the harness, suspended from a suitable point.

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The Reserve Deployment

Once you have decided to deploy your reserve parachute, place both brake handles in your left hand. Look for the reserve handle and firmly take it with your right hand. Pull upwards on the handle to release the two locking cables and subsequently releasing the reserve from the neoprene harness container. You will now be holding the reserve closed inside the deployment bag, hanging from the deployment handle. Look for a clear area and throw the reserve away from you and the glider.

It is preferable but not absolutely essential to throw the reserve away from the direction of spin, and with the air stream passing you. This will speed up the deployment process.

Once the reserve has opened, immobilize your glider either by pulling it in completely, or by pulling the brakes, B or C lines to stall the glider. If you do not do this, the glider and the reserve will oppose each other and increase your sink-rate considerably, and there will be a increased chance of the two becoming entangled.

We recommend that if your glider is in a flat spin, if you have the necessary height, that you try to stop the spin (i.e. Full stall, B-Stall etc.) before deploying your reserve, since there is a much greater danger of entanglement if you are in a flat spin. The fastest deployment will be if you are in a spiral.

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Pilot Protection

The EDGE has a pilot protection system, combining the usual airfoam type protector with a lexan sheet (47143) which aids in spreading the load over the absorbing area of the airfoam and a Polystyrene side impact protector which offers the maximum protection available to a paraglider pilot today.

The lexan sheet (47143)
should be insert in to the pocket on the rear said of the Airfoam (42150)

The Airfoam Protector (42150) for the EDGE was derived from the very successful Airfoam for the Silhouette and Contour Harnesses.

Due to the floating seat board system used in the EDGE, it is important to install the airfoam correctly, so as not to restrict the movement of the seat plate. The two velcro attachment straps must be matched perfectly with the velcro on the airfoam, leaving an

open space between the airfoam and the pilots back. Only the Airfoam (42150) specifically designed for the EDGE should be used. It should be insert through the main bottom zip entrance to the harness and fixed in place with the two webbing velcro tabs on the sides and one patch of velcro centrally located higher up on the back on the webbing junction, in the upper rear section of the harness.

Note: Do not install the Airfoam protector under the webbing in the upper section of the harness.

Side Protector (46160)
It is fitted by opening the zip running along the bottom of the harness, below the seat board, and connecting it to two rubber bands through the slits made in the side protector (make sure to put the rubber band through the slit from the flat side of the side protector to the round side of it). Slide the side protector to its place and close the zip running along the bottom of the harness.

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Storage Space

The EDGE has ample storage space in its rear compartment, and has a large side pocket on the left hand side.

The Main Back Compartment is accessed through the top zip. This storage is most useful for articles that you will not need during your flight, i.e. your Glider Bag.

The Side Pocket is useful for items that you will need to access during your flight, i.e. Camera, Radio, Map, etc.

The Inside Pockets are useful for items that you will

need to access during your flight, i.e. Camera, Radio, Map, etc.

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Packing your harness

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In order to enjoy your harness for many years please pack it according the following instruction:

1. Open top container zip.
2. Push top cover inside the top container.
3. Put your glider sited inside the harness.
4. Buckle the harness.
5. Put the harness inside the bag.

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Accessories

The Foot Rest (44015).

Is really useful for improving your aerodynamic shape, improving the weight shifting and taking the load off your feet.

The WONDER STIRRUP - 2 step integrated stirrup

Instead of using a main and second step it is recommended to use the revolutionary wonder stirrup that contains a stirrup and a second step, all in one.

When the WONDER STIRRUP is connected to the harness it's held in a position which allows the pilot to insert his foot into the second step easily without ever needing to leave the hands from the brake. This system increase safety of flight and glider speed range.

The Radio Pocket (44008s).

Inside the main back compartment of the EDGE, there is a "D"-Shaped plastic retainer, to whick\h the radio pocket can be attached. Above it on the left shoulder, there is a neoprene patch which can be cut to enable you to pass a connection from your speaker-mike or headset to your radio.

The Front Ballast Container (46170).

Can be fitted to the front of the EDGE by clipping it into the flying (main) carabineers, where it hangs horizontally in front of the chest strap. The front ballast should only be fitted after putting on the harness and closing the chest/leg strap buckles.

Inside the main back compartment of the EDGE, there is a "D"-Shaped plastic retainer below/behind the left shoulder, to which you can attach your "**Camelback**" or similar water container.

Do not attach a ballast container in this position, it will alter the center of gravity of the harness and your sitting position will change. We recommend installing a maximum of 2kg to this point.

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Inspections

These can generally be divided into two kinds, namely: - short preflight inspections, done before each flight and the more thorough inspections that are carried out periodically in order to ensure the airworthiness of the harness.

Preflight Inspections:

- Paraglider is connected correctly and both carabineers secured by their locking mechanisms.
- There is no visible damage to the harness that could affect its airworthiness.
- The reserve parachute container is closed correctly with both locking cables in place.
- The deployment handle is inserted all the way into the elastic pockets.
- All pockets closed properly and all loose items tied down safely.
- All quick lock buckles should operate and should be closed securely.
- All adjustable straps are set as you desire and symmetrical.

Periodic Inspections:

The harness is inspected for airworthiness on every reserve repack, or if there are any signs of damage or wear to the harness structure. Inspect the harness after any crash or bad landing or takeoff where it could have been damaged. Also inspect the harness after long periods of storage, or if another pilot has used the harness not directly under your supervision (you never know what it has been through). Also inspect the harness if for any other reason there may be damage to it. In any case the harness must be thoroughly inspected every 12 months as a minimum. The points to check are as follows:

All webbing and straps are inspected for damage or wear and tear and repaired or replaced if necessary. Special attention should be paid to points where wear may not be easily seen such as the inside of the carabineer hook up points and the loops of webbing holding the quick lock buckles and also the various Kamet buckles and adjusters.

All sewing, sewing patterns and sewing lines are inspected and must be intact. Should any sewing show signs of un-raveling, wear or excess stress, it must be attended to before your next flight. A qualified person using the correct thread must carry out repairs.

Elastic retainer cords are inspected and replaced if necessary. Pay attention to the elastic sheath holding the reserve deployment handle in place. It must retain its elasticity and hold the handle properly in place.

All buckles must be in a safe working condition, including the carabineers, quick lock buckles and kamets.

The seat and back plates must be in one piece and without cracks.

All sub assemblies are in good condition. Take special care to inspect the parts that belong to the reserve container system.

Dirt can be cleaned off gently - you can use a damp rag or wash the harness with a mild soap. Make sure you remove all the sub assemblies, seat board, back plate, reserve parachute and foam padding etc. Drip-dry the harness in an open shady place.

Open the harness and inspect all interior parts, including the fabric, webbing straps, buckles, kamets, and all sewing.

If everything is found to be in an airworthy condition you can re-assemble the harness and pack the reserve, if not the necessary repairs must first be carried out before the harness can be approved and used. Remember that a seam that has started unraveling may go a long way before the next inspection!

All materials needed for repairs are obtainable through your dealer.

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Maintenance and Repairs

By keeping your harness clean and airworthy you will prolong its life and retain a higher resale value, it you ever decide to upgrade it.

We have carefully selected the materials we use to provide you with a durable harness that will be able to give you years of use. By following some of the advice given below you can further extend the life of your harness and its accessories.

Follow all recommendations regarding inspections and maintenance in this manual.

Always keep the harness in a protective bag (glider bag) when not in use, and do not expose it to UV rays unnecessarily. Sunlight will weaken the materials and cause fading of colors.

Never store the harness in a wet or damp location or if it or a part of it is wet or damp. First let it dry out completely. Store it away from direct sunlight, a dark place is best.

Avoid leaving your harness exposed to the elements while not flying, pack it away or at least cover it.

Wipe away any dirt and dust regularly. Do not allow dirt to settle permanently. Use a plastic bristle brush and a mild soap to clean it if necessary.

Do not drag or pull the harness on the ground, be especially careful on rocky areas.

Use a competent launch assistant when necessary. A failed takeoff is one of the most common times to damage a harness.

If you discover any damage on the harness you should make an effort to repair it as soon as possible. Even apparently minor damage can continue tearing or unraveling, complicating the repair or even becoming dangerous.

If any of the elastic retainers which keep the shoulder and leg straps in place wear out they can easily be replaced. You can obtain these or any other spare parts from any Apco dealer.

Any repair that involves reinforcing or replacement of vital parts of the harness should be carried out by a facility recommended by Apco. Some materials on the harness will wear out sooner than others.

Thank you for your patience in reading this manual - we would like to hear your comments and criticisms as you get used to your harness. This will help us to continue developing better products for you in the future.

Take Air!!!

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